

cat & dōgma

Comparative Life Cycle Impact Assessment of Organic Cotton versus Conventional Cotton

Analysis Overview

- The objective of this study is to compare the impact of Cat and Dogma's organic clothing against conventional cotton clothing made using conventional cotton. The findings of the study are intended to be used as a basis for communication and future process improvements. The primary audience for this study is Cat and Dogma, its investors and customers.
- This cradle-to-gate comparative life cycle inventory (LCI) encompasses all upstream processes of apparel manufacture from farming, raw material acquisition to fibre and fabric manufacture and in-between transportation. All the relevant life-stages of organic and conventional fabric apparels are analyzed to estimate the net impact savings across three key metrics: GHG emissions, primary energy use, and blue water consumption.
- This analysis does not include impact assessment except for Global warming potential impact. It does not attempt to determine the fate of emissions, or the relative risk to humans or to the environment due to emissions from the systems.

Scope of study



- This is a cradle-to-gate comparative life cycle inventory study
- Functional unit is 1 kg of finished apparel for each Cat and Dogma and comparative conventional fabric type
- The study examines Cat and Dogma apparel manufacturing in India and compared it with conventional cotton apparel manufacturing in India . Post apparel manufacturing processes including consumers transportation & use and disposal are not part of this study.

Key Assumptions

Overall Fabric Assumptions

- Both organic and conventional cotton are cultivated and ginned in India.
- All remaining life cycle stages are identical for both types of cotton apart from the waste generation.
- The study is representative of India production as 75% of weightage in the reference study from Textile Exchange is to India.
- For the final comparative analysis, transportation to North America has not been considered due to lack of data in typical fashion supply chains.
- Waste assumptions:

Waste scenario	Waste %
Yarn Manufacturing	12%
Knitting	2%
Cut & Sew	15%

Analysis Overview

Other data

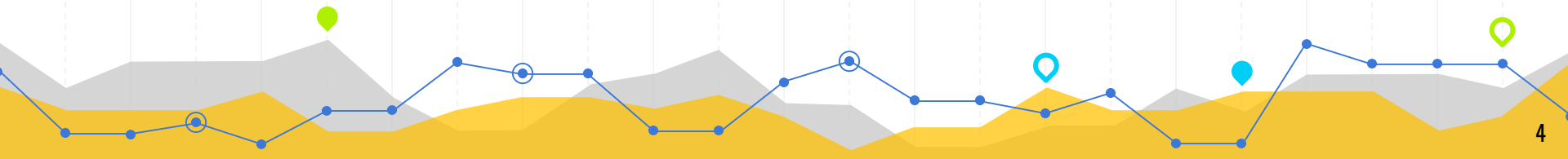
Average electricity grid for India is used to model Cat and Dogma apparel manufacturing and to model conventional apparel manufacturing. Transportation distances were modeled using Cat and Dogma inputs, Ecoinvent and ThinkStep databases on manufacturing plant locations.

Data Audit

No internal or external audit of resource utilization data provided by Cat and Dogma was performed by Green Story for this study. It is assumed that data provided by Cat and Dogma and its suppliers is factual and accurate.

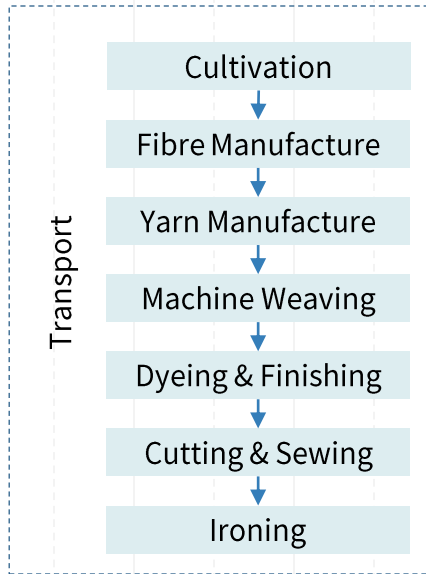
Critical Review

No third-party critical review has been performed for this study.

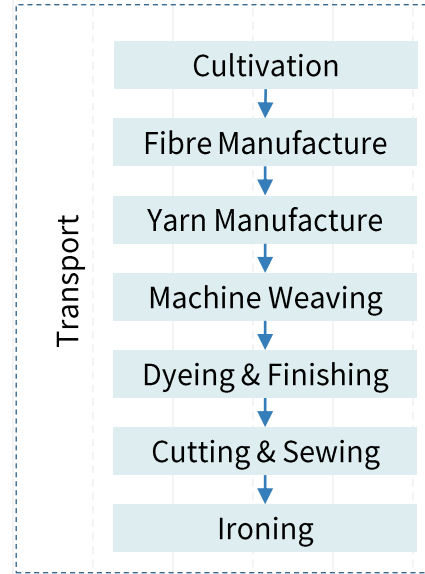


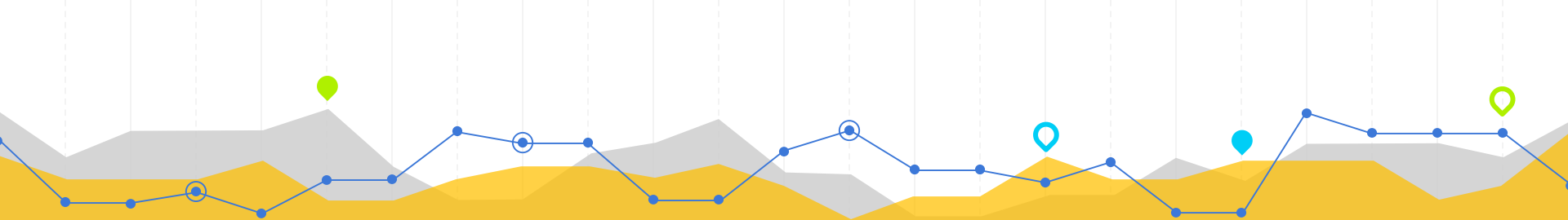
System Boundary

Organic Fabric



Conventional Fabric





Organic cotton vs conventional cotton

Comparative impact

Cat and Dogma's organic cotton clothing vs. conventional cotton global comparative LCI (per kg of clothing)

Net impact difference between organic cotton and conventional cotton

Per kg of apparel	Unit	Cat and Dogma organic	Conventional cotton	Percentage lower
GHG emissions	kgCO2e	1.33	2.47	46%
Water consumption	litres	248	2892	91%
Energy	kWh	2.20	5.68	61%



Net impact equivalence (difference between organic cotton and conventional cotton) per kg of apparel



2.7 miles
of driving
emissions avoided



1391 days
of drinking water
conserved



268 bulbs
powered for an
hour

About Green Story

The Green Story team is led by Akhil Sivanandan and Navodit Babel. Both members received their sustainability reporting training from the Global Reporting Initiative.

- Navodit has 10+ years of experience in consulting and product management with global corporations. He has successfully overseen the launch of national card strategies in Canada. During his MBA at the University of Toronto, he developed a sustainability ranking algorithm for mining projects for Sustainalytics which used in the company's global operations.
- Akhil has worked on sustainability projects for companies such as Philips Lighting and given presentations and interviews on the topic for multiple publications including the New York Times. He was also intimately involved in the Ontario Cap and Trade and Offsets programs as part of the Government. Akhil received his MBA from the University of Toronto.

Green Story's mission is help companies communicate environmental and social impact to stakeholders in a clear, credible and relatable manner.

We work with a range of companies from waste management firms to one of North America's largest bottled water manufacturers to engage stakeholders and measure and communicate impact.

Green Story is a Ministry of Environment Agent of Change, Social Capital Markets scholarship recipient, a member of the MaRS Centre for Impact Investing and of Ryerson University's Social Venture Zone

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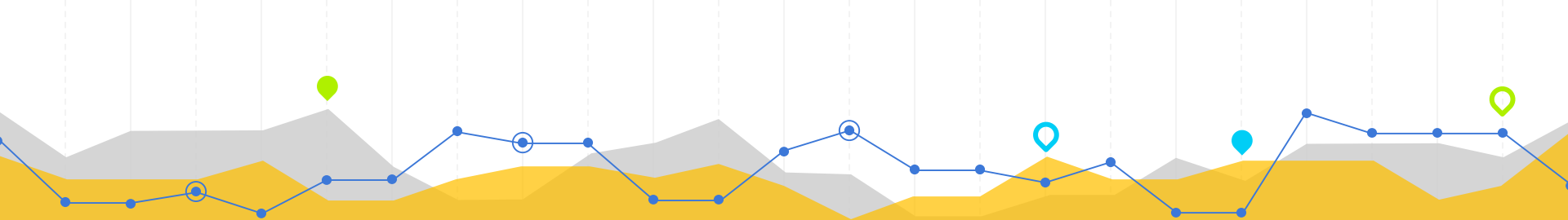
List of sources

Secondary Sources

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- Thinkstep GaBi . "GaBi LCA Databases." GaBi Databases: GaBi Software, 2018, www.gabi-software.com/international/databases/gabi-databases/.
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- PE International, AG. Life Cycle Assessment (LCA) of Organic Cotton - A global average. 2014. Accessed at <https://textileexchange.org/downloads/life-cycle-assessment-of-organic-cotton/>
- Textile Exchange, The Life Cycle Assessment of Organic Cotton Fiber – A Global Average, Summary of Findings. 2014.

Primary Sources

- Cat and Dogma supplier data
- Cat and Dogma proprietary data



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